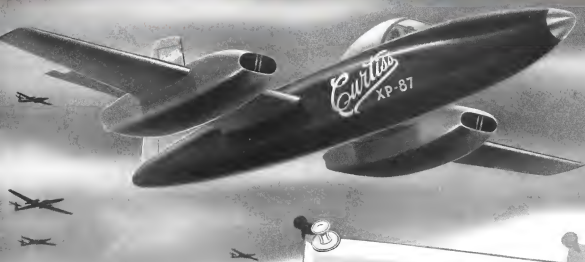


# AVIATION WEEK

A MCGRAW-HILL PUBLICATION

FEB. 16, 1948



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- The Curtiss-Wright XP-87—first four-engine jet propelled fighter of the U. S. Air Force—now joins the Curtiss S-3—first fighter plane of American military aviation—in the album of famous Curtiss “firsts.”
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## NEWS SIDELIGHTS

### Bad News for Non-Scheds

CAA Safety Bureau is working behind locked doors on an extensive revision of its current safety regulations with emphasis on bringing non-scheduled carriers up to scheduled airline requirements.

### Newest CAA Names

Latest candidates for CAA administrative post soon to be visited by T. F. Wright as Del Rostzel, president of Aeronautical Radio, Inc., and Shirley W. Belsky, counsel for CAA, last night in New York.

Rostzel has strong office backing and is an outstanding technical man, particularly in field of navigational aids. Belsky is a Harvard law school graduate, a private pilot, with no years' service in CAA. His support comes from some Capitol Hill legislators interested in aviation. Meanwhile Deputy CAA Administrator Fred Lee is still strong in the morning.

### Congress More Tolerant

Vacancy situation on CAA is having a wholesome effect on Congress' attitude toward the Board. Congressmen who last year heaped unreasonable criticism on the Board are now thinking and talking along constructive lines. Several House speakers have been coming calling for a boost in CAA salaries from \$18,000 to \$17,000 a year to stimulate morale and attract high-caliber personnel.

Rep. Earl Warren (D., Neb.), chairman of the Commerce Department Appropriations subcommittee was holding closed sessions on the coming year CAA budget, indicating that his group will at least "concede" the salary issue. An initiative of Congressional appreciation over CAA's dedication to law legislation introduced by Rep. Mendel Rivers (D., S. C.) turning the Board over to a governing decision until vacancies have been filled.

### Report Stira Committee

Heated wrangling is under way between Republicans and Democratic members of the Senate War Investigating Committee over recommendations to be made in the group's final report.

Report controversy centers handling of the investigation into Howard Hughes' \$40 million wartime aircraft contracts, among the hot political issues

of (1) whether Elliott Roosevelt's pressure was largely responsible for the awards and (2) whether the awards was in violation of Moore's GOP Sen. Brewster, chairman of the committee, for Hughes' alleged refusal to accept TWA with FAA and support the Senate's chosen instrument bill.

Republican committees are anxious to submit a report acceptable to Democratic members to fulfill a promise about ending any possibility of Hughes' rise against Brewster. Senate has extended time for the committee to file the report, due Jan. 31. It will contain serious dealing with the participants of May 1945. Brewster, Meyers and failures in war mobilization.

### Brewster vs. Hughes

Chairman Brewster has put Howard Hughes on the spot.

The GOP Senator has formally notified Justice Dept. he wants a thorough investigation made of Hughes' "blackmail" charge against him—Hughes is quick to bring a complaint making the charge.

In his published articles last summer alleging that Brewster attempted to sue in judicial session to take him into a matter of TWA with Pan Am, Hughes stated he would file such a complaint.

In a transatlantic telephone conversation, Irving Kaufman, assistant to the Attorney General, stated the phone-tapper to move ahead with the complaint, but Hughes has not budged on the matter.

### Phelps to NAA Post?

Don Phelps may succeed Lowell Swanson as executive in chief of the National Aeronautics Association. Bob has arranged to meet NAA special conference, meetings, and events he has come to previously NAA in the hands of members of its membership. "Call in Bob Phelps" has become a byword in the aviation industry when the question of a futurist, a battle reservation or an important opening date arises from his long background of civil aviation. Phelps is expected to accept into the spotlight of the director's job.

### Landis—ALPA

If National Airlines goes through with its \$5,000,000 bid and tender suit against the Air Line Pilot Association, former CAA Chairman Lewis H. Landis may be found waging the union's legal battle.

Landis may be found waging the union's legal battle.

### Did Smith's Jack Do It?

Wright Field and high military officials in Washington, after years of delay, are attempting to hang a security case curtain around the robot's No. 1 experimental flight course on the new flight deck. More the Navy, the Army, and even military officers, now own own information to move without specific permission from Wright Field. On 11 recently both military personnel, at organizational officer levels, and major representatives involved in moving equipment aboard new superjet aircraft, had little difficulty in coming and going from the air base.

The move is attributable to a national effort to stop military information leaks at a key source. Intelligence officers now are investigating slowly, at least points, about most spots that provide reference to Marine personnel on weekends. Military personnel at Marine are believed to have received atom warning against discussing flight projects while off the base, particularly in private settings between civilian and military. This action came about one month after civilian Jack Massey dropped in his court stop, "Smith's Jack," how military secrets were obtained by spy ring. Massey pilots' leave talk during off-duty weekends.

### Borgoin Hunters Lose Interest

Even out-of-the-pocket money has lost the efforts of a small, U. S. Pacific Navy reconnaissance plane in the aftermath of the aircraft crashed sharply following the recent Coastal Air Line accident at Stennis, Ga.

### 'You Can't Fire Us'

Several of the 39 unauthorized men were arrested in the aftermath of the aircraft crashed sharply following the recent Coastal Air Line accident at Stennis, Ga.

### More Non-Sched Penalties

Now in the field is the first case in which criminal penalties (on the basis of fraud) are sought against an unscheduled airline for intentional operation in violation of its violation of the Civil Aeronautics Act. Penalties range up to \$500 for first offense and not more than \$1,000 for each subsequent offense.

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AVIATION WEEK, February 16, 1948

Vol. 46, No. 7

# AVIATION WEEK

Feb. 16, 1948

## Aircraft Procurement Cut for Fiscal 1948

Requested by War and Navy Departments			
Army	1,444 planes	17,270,800 lbs	\$411,496,000
Navy	1,236	6,943,000	400,771,000
<b>Totals</b>	<b>2,680</b>	<b>24,213,800</b>	<b>\$812,267,000</b>
Requested by the President's Budget			
Army	932	13,647,000	\$400,040,000
Navy	179	3,561,000	243,900,000
<b>Totals</b>	<b>1,111</b>	<b>16,508,000</b>	<b>\$643,940,000</b>
Reductions by President in Original Requests			
<b>Totals</b>	<b>1,569 planes</b>	<b>\$915,000 lbs.</b>	<b>\$448,327,000</b>

## Trebling Military Plane Production Urged in ACC Report to Truman

5789 aircraft per year urged as minimum national security requirement; reveals Truman 50 percent slash in plane procurement funds for fiscal 1948.

By ROBERT HOTZ

Tackling current military plane production, the bill \$750 million a year with an average weight of 60,000,000 lbs. was recommended last week by the Air Conditioning Committee in its annual report to the President.

This boost to ACC's estimate of the minimum airplane requirement for national security from the 1000 plane annual production rate it urged in 1945 was based on the dimensions of the international situation during the past two years.

Aircraft industry built 1300 military planes in 1947. ACC recommendations follow closely the report of the President's Air Policy Commission on both the international situation and the airplane required to meet it.

Truman slash—ACC based its new production rate on new assumptions of at least a year's extension of the cost of a national emergency and a high degree of industrial mobilization planning. Both of these assumptions may now be revised, the report warned.

A budgetary heavily increased fiscal deficit of better than 50 percent in Air Force and Navy aircraft procurement funds for fiscal 1948 was revealed in the ACC report (see accompanying

table). Necessity for immediate increase is supplemented 1948 funds is implied.

Industry Review—Reversing current state of the industry ACC emphasizes that commercial plane production will not provide an adequate basis for expansion of military production in an emergency. Commercial transport production, including exports, totaled 487 planes in 1946 and was expected to maintain that level through 1947 and early 1948, with another contraction assumed before the end of 1948. Lasting current transport orders at 565 planes the report points out that all transportation on order for domestic use are delivered the airlines will have standing capacity 450 percent greater than the 1944 requirements forecast by the Civil Aeronautics Administration, admittedly a very low.

Domestic and development contracts and national mobilization studies are not adequate to maintain the aircraft industry in a readily expandable condition, the report concluded.

Most important problems facing aviation during 1948 are listed by ACC in the following order:

1. Determination of the proper level for an aircraft industry capable of meeting possible military and civil requirements and of prompt expansion to meet possible wartime demands.

2. Prompt and vigorous action to adjust and coordinate production of additional military and civil aircraft essential to increase rapidly and capacity of the domestic air transport industry. This program should be designed with military needs and should follow recommendations of the Radio Technical Committee for Aeronautics on this subject. ICA's report has been completed and will be submitted during 1948.

3. Full participation by the United States in the International Civil Aviation Organization.

Other ACC recommendations:

- Use a standard ACC proposed accident analysis manual by all federal agencies to produce safety statistics readily comparable and easily adaptable to standard statistical treatments.
- Expansion of personnel and facilities for coordination of all search and rescue facilities over ocean areas to meet requirements of domestic and international civil aviation.
- Continued denial of domestic civil

mission to Germany and Japan. All air transport required by these areas should be furnished by acquisition authorities or by international civil aviation of the United States and friendly countries.

• Completion of a study on the need for and the methods by which government assistance can be obtained for development of new civil air transport planes.

• Completion of a study on the desirability of government aid in financing new experimental projects for domestic and U. S. international aircraft and on the methods whereby this might be best accomplished.

## New Crews Trained In NAL Pilot Strike

The air transport industry's third scheduled pilot strike has gone into its second week, following a last-minute effort to avert the National Airlines-Lake Pilot Association dispute to a domestic arbitration board.

NAL's 145 pilots struck on Feb. 1, halting operations which had been affected for two weeks by a walkout of clerks and mechanics (AVIATION WEEK, Feb. 9).

• **New Crew Ready**—Shortly after the National Airlines Board temporarily suspended orders to bring the two parties together, NAL indicated that it would attempt to resume operations with new ALPA pilots. The carrier has sent telegrams to all except a small number of the striking pilots advising them that they were no longer in the company's employ.

The strike brought a flood of applications from non-striking pilots to be employed with the carrier. Meanwhile, NAL's headquarters, in the matter of charter and unscheduled activities,

with many pilots from these unscheduled lands constantly on the move between sites.

• **Pilot Bargain Failed**—Last week, 18 non-strike mechanics failed over were being checked out by NAL, with 12 more men standing by. During the TWA pilot strike in the fall of 1946, the Midway Pilot Association had requested willingness to replace ALPA personnel if granted a long-term conflict-free working developed from the offer.

National also reported that "most" of the pilots wanted by striking clerks and mechanics had been offered.

• **ALPA President**—David L. Behrman, ALPA president, blamed the walkout on two factors: "1) increasing opposition on the part of the pilots about flying planes whose safety aspects, from the standpoint of maintenance, were open to serious doubts due to the strike of ground mechanics, and 2) failure of the company to abide by an agreement signed by the discharge of a pilot had having an accident more than two years ago." The ALPA chief said the strike has nothing to do with pilot pay.

Following Behrman's charges, National filed notice of a \$5,000,000 damage suit against ALPA. A NAL attorney said the action was one for libel and slander and was based on the uncorroborated statement by the union that the airline's aircraft were unsafe.

• **NAL Replies**—National stated that during the strike and mechanics' walkout all its planes were grounded for flight. Its CAA inspection before resumption of flight following the strike, said that the airline's aircraft were "unsatisfactory." An extended pilot strike remains on top of the airline's problems. The airline said it is not sure if the ground crew of DC-6's were last November would be a serious financial blow to the carrier. NAL has few DC-6's out of service because of the grounding.

## Policy Group to Seek Aircraft Fund Boosts

The Joint Congressional Aeronautics Policy Board is expected to take action with the Air Force's proposal for an end budget of from \$5 to \$7 billion in its report, due May 1.

Sen. Owen Brewster (R., N.Y.), Board chairman, has already announced that "possibly increased" Air Force appropriations will be called for. The current year USAF allocation is \$1.7 billion, and the proposed 1948 fiscal allocation, \$1.7 billion. Both Brewster and the Board's vice chairman, Rep. Carl Albert (R., Calif.), have indicated that their concept of "adequately increased" appropriations falls substantially short of \$5 to \$7 billion a year.

• **Brewster's View**—Brewster gave the clue to the line of reasoning which will be followed by the Board in setting a "feasible" USAF budget when he asserted that "under a single strategic national defense plan has been shown up, it will be possible to maintain proposed strength for the Air Force, Navy and Army at far below—about 50 percent—below current estimates, since it will wipe out overlapping activities and overlap as well as projects which do not fit into the overall plan and the defense superstructure existing in the accelerated strategic plan of the three services at present."

Observations indicate that the Board will consider increased general aid equal to the 70 percent program proposed by USAF and endorsed by the President's Air Policy Commission but fail at approving the estimated \$7 billion a year budget; beyond necessary for its realization.

• **Budget Angles**—On the \$7 billion USAF budget proposal, one aspect of the national defense establishment's plan for a \$70-billion-a-year defense program, Brewster, who is chairman of the Board's armed services subcommittee, observed:

"There are two ways by which the U. S. could become a Communist country. One is by selling out directly to Russia. The other is by spending money into bankruptcy, acting the stage for Communists to take over and start in possibly what a \$250 billion a year down on the U. S. Treasury for arms would accomplish. Such a gigantic national defense budget instead of securing the U. S. against Communist aggression, would make it a weak prey."

The Congressional Board last week launched into a first series of executive sessions with 20 members advisory council before starting to draft its report. After filing the report, due May 1, the group will appear before the standing committee of Congress upon invitation of its recommendations.

## Navy Boosts Order For Sikorsky 'Copters

New Navy order for 23 additional Sikorsky HO4S helicopters will bring to 40 the total of the type in fleet service upon completion of the latest contract. These new craft will give the Navy a total of 18 helicopters of various types.

The HO4S, military version of the \$5.1, carries at 55 mph and has a top speed of 110 mph. With a main rotor diameter of 48 ft., it is 57 ft. long and stands 13 ft. high. It is powered by a Pratt & Whitney 1700-horsepower engine of 450 hp. Rate of climb is 1200 ft./min. Passengers are made for helicopter gun for water landings, rescue boats for air lifting and extra fuel tanks for extended range.

Assignment of helicopters to regular fleet units for operational duties requires the completion of more than a year of service testing under rigorous conditions. The HO4S is now used in the Antarctic test waters. One Bell HTR and two Sikorsky HO4S helicopters are now being used for reconnaissance and transport work by the Navy's test force in the Antarctic.

The helicopters have proved perfect for use in rescue jobs, such as placing distress calls for the boat. During a recent series of trials, helicopters were used to rescue an fighter plane which landed in the ocean in carrier ships. Another time-saving job done by the Navy's helicopters is the delivery of mail and personnel between ships, down the ship to sea then to shore that usually requires a full day's work, for a destroyer.

## Smithsonian to Direct National Air Museum

Smithsonian Institution will assume direct responsibility July 1 for about 100 historic aircraft of National Air Museum now stored in the former Douglas Aircraft Co. plant at Park Ridge, Ill., for eventual display in the National Air Museum.

Previously administered by the Air Force, the huge structure will be transferred to War Assets Administration with the beginning of the 1948 fiscal year. Dr. Alexander Wetmore, Smithsonian secretary, has asked Congress for \$750,000 for the protection and maintenance of the collection for the year. These planes average about 100, 000 sq. ft. of the 1,700,000 sq. ft. total area of the huge plant.

• **Washington Location**—Plans for the new museum building, which will be the MacArthur place (ed, completed a 100, 000 sq. ft. structure with three stories on one area and four stories on another



NEW LOOK ON THE PACKET

Latest flight version of the C-130A, improved version of the Lockheed C-130 Packet, shows new configuration of the airplane's modified wing and engine. Market changes in the nose, redesigned to give pilot and crew more visibility in all directions. Plane is built to carry more than 2000 miles.

Study of possible locations indicates that the museum will be built at Washington, D. C., on the Mall adjacent to the Smithsonian Institution. It will be designed to accommodate about 200 airplanes including the 32 planes now displayed at the Smithsonian.

The original Wright brothers flyer, which is where the country from the Science Museum, Smithsonian National Air Museum, will occupy the top place of honor in the U. S. Air Museum, according to plans for the first airplane cycle of national flight.

• **Some Disappointment**—Some criticisms are already showing disappointment in the modern plan for the museum, which will probably prohibit the display of complete large aircraft such as the Boeing B-29, C-54, B-12, Douglas B-19 and others. Dr. Alexander Wetmore, Smithsonian secretary, says that any plan for the display of such large aircraft, though which vintage would prove, would be suggested due to space considerations. He favors the use of space assembled, such as hangars, and shows one of small scale models, the latter disappearing to museum group, from museum store of equipment, such as the actual Norden

bombight that dropped the first atomic bomb, here already been assembled and will be displayed last year.

The National Air Museum is being planned by an advisory board, made up of the Chief of Staff of the Air Force, Chief of Naval Operations, secretary of the Smithsonian Institution and two private citizens appointed by the President. Present composition of the board includes Maj. Gen. E. M. Posen, representing Civil Aeronautics, Rear Adm. A. M. Felt, representing Admiral C. A. Field, General E. A. Tamm, William B. Stout and Dr. Wetmore. The board received \$70,146 for fiscal year 1948 and is adding \$201,146 for fiscal year 1949. The museum is largely for salaries for the 11 employees located in the Douglas Chicago plant for the study of the planes presently stored there.

## No-Fog Tests Planned At Lockheed Terminal

Cloud-free tests of the controversial "No-Fog" test method using Army Chemical Corps' H-41 arriving in the gaging agency.

From U. S. Weather Bureau observers and a later member from the Army use within 24 hours action to make reduced observations and reports which adequate facts are reported at Lockheed Air Terminal, Burbank, scene of the tests. Results will be evaluated at the office of the Chief of the Weather Bureau and AEC.

Due to California's unusually dry winter, observations taken last April, April 10, during comprehensive tests before April, usually the Spring foggy months for the test terminal area. No-Fog equipment, consisting of four automatic optical-chamber devices, were used, as detailed at Lockheed last July. Since then the terminal has had no "fog" fog conditions. Weather Bureau observers used a reasonably thick fog blanket with one side visibility of less than 500 yards of observation of results of No-Fog tests will be maintained.



ARGENTINE ATTACK PLANE

LL-22 is modified North American A-10 built by Argentine Air Force at attack plane. Craft is armed with machine guns and rockets. It is being built at the Instituto Aeronautico de Argentina and is used for training purposes. Argentine Air Force has 100 Gladius fighters purchased from Great Britain.









between airlines, although there are irreconcilable differences in management and attitudes.

Some European aviation insurance experts are considering the number of fatal accidents per domestic flight. There might be an honest yardstick, when it is possible to agree on a definition of a flight and then to obtain the statistics on the numbers of flights.

Another way one might go is to rate airline safety as to determine the proportion of airline passengers that are killed in airline accidents. In the five years ending with December 31, 1947, the 421 airlines flying for the year 1947, 39,797,000 earned a rate of about one per 100,000. (In 1947 the rate was 1.6 per 100,000 passengers because of larger aircraft being used and more overcapacity killed per crash.) That then it will within acceptable magnitude (though far inferior to the railroad or the street) is shown by the comparison for 1945, taken from the World Almanac (Table 10).

The airline safety record by any yardstick appears well within magnitudes of safety acceptable to the public. Nevertheless the airlines have a moral obligation, and a financial incentive to continue to make it safer.

Airline accidents due to fires in flight or structural failure are important but of a secondary nature. The outstanding factor in producing fatal or potentially fatal airline accidents over a period of years is the crew made in approach and landing during poor weather conditions. If this factor were eliminated about 44% of fatal or potentially fatal airline accidents would go with it. Further improvement will result in the future by advances in methods of selecting personnel, advances in training methods and improvement of pilot procedures, the establishment of improved controls to obtain closer control over the quality of performance and standards centrally a recognition by dispatchers of the fact, made private, that pilots and mechanics are human. Being human they are subject to fatigue, stress, forgetfulness and other causes of error in action. Dispatchers must give as much weight to the human factors as to performance and structural integrity.

► **Engine Safety**—Before leaving the airline safety picture we should touch upon the methods used to increase the safety of engine personnel. We mentioned before that the pilot and other crew members should reduce their safety on the basis of pilot fatalities per hour of exposure (per 1000 hours is commonly used). The Federal Society of America has published a death rate of about .305 per thousand hours of flying or about one fatality per 3,000 hours for an airline pilot. Since he flies no more than 1,000 hours per year,

Table 10—Deaths Rates by Civilian Causes for 1945 per 100,000 Population

1. Accidental Deaths	1.6
2. Accidental Deaths	1.6
3. Motor vehicle accidents	1.6
4. Commercial	1.6
5. Railroad	1.6
6. Air Transport	1.6

(Includes fatalities as well as airplane)

he would have to fly 200 years before meeting with a fatal accident.

The statistics tend to measure the safety of airline pilots, personnel on the line as well as the airline industry frequency of accidents and severity of accidents based on man hours of exposure. In both respects the air transport industry is far doing it well. The number of disabling injuries per 1,000,000 man hours at 17.55. The rate for all industries is 14.16. The severity rate is based on days lost per 1,000 man hours. Air transport is again doing poorly with a rate of 1.92 against an all industry average of 1.28. Even the shipbuilding, petroleum and iron and steel products industry do better than the airlines. On the other hand, the aircraft manufacturing industry does very well being amongst the safest in the industry in which it works.

► **Non-scheduled Air Carriers**—In 1946 the non-scheduled air carriers were involved in eight fatal accidents (killing 19 crew members and 55 passengers). Their fatality rate based on the CAB estimate of 37,000 hours flown is therefore .21 fatal accidents per 10,000 hours. Scheduled air carriers had a rate of .04 per 10,000 hours or five times better than the non-scheduled. However, there is great variation between the quality of management and operation of air-scheduled air carriers. Some have excellent records and should not be linked with the whole lot.

Mishaps such as landing into buildings or other aircraft, wing damage, loss by ground fire, damage to aircraft due to tracks, by scaffolds and other means of aircraft losses have not been included here because the expenses would not permit it.

► **Personal Flying**—According to Charter, Fixed Base Operations, Private, Industrial and etc.—The public cannot fault the man who is taking a flight with any random pilot that goes alone, or those who with friends or even of

entireties. The public would be safe if it could differentiate between the good and the bad. We all have pilots with thousands of hours who have very few safety records and those who flying school and charter operation with wonderful safety records. The large corporations owning executive type aircraft have established excellent safety records. In personal flying discrimination is necessary for safety when one chooses to travel that way.

The accident rate in personal flying is much more difficult to evaluate than in scheduled airline transportation because the exposure records such as hours or miles flown, or passengers miles or even the number of certified aircraft and pilots is not available unless one can only be estimated.

The CAS has initiated a method for obtaining hours of exposure by a sampling process. This is a logical and commendable approach.

The results of these surveys indicate that in 1946 there were about 3,500,000 hours flown in non-scheduled operations. The CAB estimates that of this total the non-scheduled air carriers flew 175,000 and non-air carriers 3,325,000 hours. A breakdown of the latter was made by the CAB. Due to the overlapping use of aircraft, a number of discrepancies, some of data probably open to debate, had to be made before arriving at the figures given in Table III. The scheduled airlines have an .04 fatality rate or about 50 times better than personal flying.

Probably the nearest accurate figure in personal flying is the number of registered aircraft. The average number is 1946 was 17,000. In that year, the latest year for which accurate figures are available, about 1,000 people were killed in civil aircraft accidents. Therefore, as in every 85 airplanes was involved in a fatal accident a damaged rate, considering the very limited use these airplanes get. But as it is, this is a most important one for the person taking the

Table III—Private Flying Accidents

Kind of Flight	Estimated Annual fatalities per 1000 hr.
General	1.0
Non-Commercial	1.0
Commercial and Non-Commercial	1.0

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Today, more U.S. airports display the Flying Red Horse. Shouldn't you order our company trademark badge for 1946 importance, arranged for as follows: per Socomec-Vacuum products always within crating range!

And, for the future, many new developments are in the making. Even now, Socomec-Vacuum scientists are busy at work studying new fuels for jet propulsion and the important planes to come!

CPT) years when you cut out of every 39 airplanes was involved in a fatal accident. From the advent of the CPT program to the end of the war, the record showed that there were 117 accidents (about one in every 115 aircraft involved in a fatal accident). This was due to the training of instructors and the fact that during the first five or six consecutive years of 1940-1942 and the restrictions, gas shortage, use of all damaged airports during the latter part of the war, and on the basis of the best pilots at that time flying in extremely stressful conditions as automobiles we would have about 500,000 fatal accidents per year and kill 580,000 people. The author of this book would like to emphasize the point that if the public knew the true rate of fatalities in private flying, this class of flying would not have such drastic aversion. The author of this book would like to state it is a magnitude that the public would accept if they knew how bad it was. It is the nature of the aviation picture which has been painted as good but the public looks at it.

The stall spin must be removed as a cause of fatal accidents but even with that out of the way, the fatal accident rate would still be bad. Stalled spins account for about 45-50 percent of fatal accidents so their abatement would involve about one aircraft in every 130 in a fatal accident instead of one in 85.

For purposes of comparison, about one in every 5,000 automobiles is involved in a fatal accident each year.

I concluded before that the fatality rate of airline pilots is about 0.05 per thousand hours. The responsible figure for the FAA is 0.04 per thousand hours, more recently but according to the actuarial Society of America it was about 0.15 per 1000 hours, in the period 1970-1980. The FAA figure is less than the airline pilot. A private pilot flying in excess hours per year as an airline pilot, they are dead statistically in one year. The FAA figure for private pilots was about 0.045 and the rate for instructors .36. The doubly supervised CPT program imposed the fatality rate on the flight school instructors to be about .01 or 100 hours. This is a reasonable improvement. The Actuarial Society of America says that "There is great improvement in safety where class pilots are supervised by flight instructors with little or no tendency to improvement in those types of flying where there is no supervision other than the general requirements of Civil Air Regulations."

The fatality record in personal flying is bad enough but the overall loss record is also very poor. Each year about one or two right aircraft is involved in an accident reported to the CAA. This does not include losses due to

windstorm, heavy fire, hurricanes and numerous other causes of ground damage. The true figure is that one in every five, possibly one in every foot acre is involved in loss each year.

In personal flying, the fatality record can be reduced by almost 45% if the stall spin could be averted. Thus a campaign against low flying to reduce collisions with trees, mountains and other objects on the ground would attack another 35% of the fatal accidents occurring in personal flying. The mounting of instruction, the general tightening of training procedures appears very necessary. As in air transport design, the design engineers should recognize the problems of safety caused by human limitations and weaknesses.

Fatality records for both personal flying and airline flying would be improved at the work of the Civil Injury Research Division of the National Research Council were more adequately encouraged, supported and followed by the aviation industry.

► **Synopsis**—The completely proper syndicate used to ensure safety in aircraft operations has not yet been found and further endorsement is desirable. But

### Temperature-Probe Gives High Accuracy

Aerometric temperature probes used for the aviation flight testing in conjunction with temperature recording and transmitting devices in gas turbine engines, radio controlled planes and other aircraft are being improved. Above 400 mph, one has been designed by Dr. W. L. Howland, chief of Lockheed's Flight Instrument Research Center, by G. M. Cameron, Jr., of the same firm, and by J. H. Doolittle, of the University of Michigan. A radio-thermopile temperature probe-simplifies data reduction by insulating the total air temperature (static air temperature) probe from the aircraft's velocity. Flight test engineers today are confronted with corrections for partial adiabatic flow when other types of temperature recorder. The theoretical calculations for complete adiabatic flow are more complicated.

The temperature probe reduces the total time required to complete a flight test since the test aircraft does not need to slow down for temperature readings. Two major features eliminate position errors and other inaccuracies: (1) All velocity energy is converted to temperature and (2) the instrument readings are protected against conduction losses and radiation inaccuracies by proper shielding.

The probe is about six inches long, one inch in diameter. It can be hoisted

whatever yardstick is selected, its principal use will be to determine trends rather than assessment of exposure to accident insurance as the arbiter would for suits in within the public contract.

The injury record for ground personnel employed by the airlines is poor relative to other hazardous industries. The average record for non-scheduled air carriers is not as good as the airlines but great variation in company management within that group invalidates the use of rates or statistics to secure a true picture.

picture of their safety. This is also true of personal flying where safety is dependent on discrimination but there are sufficient members in this category to conclude that as a whole personal flying has a long way to go before it will be considered as accepted by the public.

(Based on a paper presented at 16th Annual Meeting of the Institute of the Aeronautical Sciences.)



or strat-rotated with a small air-fuel mixture applied by the manufacturer.

In operation, an electric fan cools the nozzle and flares around a resistance bulb, as photomicrograph.

Range of the visual and photomicrograph recording set: Temperature range, -65 deg. to +145 deg. C; type of element, sensitive; overall resistance, 100 ohms; 2 class allowed in sensitive field.

load resistor (8 & 8 18 wire mesh soldered for leads), accuracy:  $\pm 4$  deg C; stabilization time,  $\pm 1$  sec; type of indicator, standard Lucas Engineering Co. voltage meter with (zero current) power supply and will not vary with normal voltage changes).

Oxidographic, the Brown, or Lewis galvanometer recording magnet. Temperature,  $-70$  to  $+100$  deg. C; type of element, thermopile; Kn...

± 1 day; accuracy,  $\pm 4$  deg C; stabilization time, less than 1 sec



## AVIATION ENGINEERING DATA BOOK

SHEET NUMBER ..... D-45 CLASSIFICATION ..... WELDING

SUB CLASSIFICATION . . . . DRAFTING SYMBOLS

## SUMMARY OF STANDARD WELDING SYMBOLS

[illegible]

Southern American Welding Society



## NEW AVIATION PRODUCTS

### Cathode Ray Oscillograph

Of interest to aviation radio personnel is Model 505 oscillograph, using new 5 UP-1 tube with 5-in. screen, made by Hi-Vac Electrical Industries Co., 10119 Depot Ave., Cleveland 8, Ohio. Stated to cut radio trouble-shooting time, device is recommended for systems for generating FM signal, detecting I and A1 transmission, and discriminator outputs. Operator can also visually observe each section of its wave, check for gain, and trace signal



through receiver. Included is wide and narrow band FM oscillator; wide band, high gain variable attenuator, in 1 sec., modulates signal, permits FM oscillator to be modulated externally via audio outside source (makes FM oscillograph into sensitive FM transmitter); will contain mixer circuit, generating FM output with any good signal generator; demodulator, allows any modulated RF signal to be viewed; Signal trace unit, permits any signal being viewed to be heard by phone; and standard sync with phasing control.

### New Rubber Developed

Seen as having range of aircraft applications, latest type Avcochem rubber, Dacor 2-A, developed by R. F. Goodrich Chemical Co., Cleveland, Ohio, can be compounded and vulcanized in solid state or melt to hard impervious material as polymeric ester, elastomer can materialize as natural, pale orange rubber. Available in dry and latex forms, material as environmental stable as expected in field many applications as adhesive and as coating or impregnant for fabrics. Vulcanized products are

stated to have shown outstanding performance in heat resistant coatings on various kinds of metal substrates, base, and in seals. Other uses are seen as insulation coating on motor coils, and in a heat seal and resistant jacket for wire. Tests under electric stress at 4000 V per 5 ft for one thousand hours showed no apparent loss in properties, whereas older type rubber compounds were completely deteriorated in much shorter time. After 720 hr. at 300° F., material shows 35% change in elongation in comparison with 75% in 7 hr. for good rubber compounds. Ozone resistance is stated as even more striking. 600 hr. exposure showing less effect than 6 sec. exposure to rubber.

### Light Metal Washer

Aluminum spring lock washer, known as Diamond G, for light metal assemblies, is announced by George K. Garrett Co., 1421 Chestnut St., Philadelphia. Stated to have advantages of light weight, corrosion resistance, and strength and tension of known or standard, device is suitable in all standard and special sizes.

### Makes Milling Easier

For production activities, new Polar gun No. 52 indexing and cross slide table with graduated rotary top is offered by Chicago Tool & Engineering Co., 8181 South Chicago Ave., Chicago 17, Ill. Table top can be rotated manually or locked in position. Table is 8 in. in dia. and 17 dia. are provided for mounting parts and fixtures. Cross travel by feed screws is collected in thousandths. Adjustable gibs are provided for wear taking. Maximum travel of 5 in. plus sliding, rotation of 3 in. table top, gives tool adaptable to many operations. Gun has foot bolt and dry slots for rapid mounting to table of mill machine, drill press, shaper, or surface grinder.



### Dry-Chemical Extinguisher

Stated to perform effectively under all climatic conditions and to winds and drafts, 10-lb. dry extinguisher made by ABCO Mfg. Corp., 10 Park Ave., New York City, sports dry chemical under pressure, in a flat powder stream that smothers flame from burning oil, fuel, burning grease, for smothering closed over fire area, up to 15 ft. distance. It's stated that smothering barrier is created between operator and flame providing protection from radiant heat. Other features claimed: No toxic gas, nonconductor of electricity, noncorrosive, measurable with break, and easy recharging.



## Information Tips

### Aviation Fuel and Lubricants

Complete "Directory of Fueling and Lubrication" for the aviation industry is available. Published by the American Petroleum Institute, it lists information on all major oil companies and their products. It also includes information on the aviation fuel and lubricant industry, including the American Petroleum Institute, the National Petroleum Council, and the American Petroleum Institute's Aviation Fuel and Lubricant Committee. The directory is available for \$1.00 per copy, plus shipping and handling charges. It can be ordered from the American Petroleum Institute, 1200 17th St., N.W., Washington, D.C. 20036.

### Working Iron Condition

Production engineers and personnel involved with building aircraft or aircraft assembly will find value in "Working Iron Condition" (Working Iron Condition) published by the American Petroleum Institute. It lists information on all major oil companies and their products. It also includes information on the aviation fuel and lubricant industry, including the American Petroleum Institute, the National Petroleum Council, and the American Petroleum Institute's Aviation Fuel and Lubricant Committee. The directory is available for \$1.00 per copy, plus shipping and handling charges. It can be ordered from the American Petroleum Institute, 1200 17th St., N.W., Washington, D.C. 20036.

## Are we "doing ourselves out" of some Aluminum Business by Aiding in the Development of Sandwiches?



The light, high-strength "sandwich" materials in the forefront of today's aircraft development promise new highs in structural strength and stiffness per unit of weight. That means less aluminum to do a given job.

Is it good business for Alcoa to make a major contribution to such a development? We think so, and here's why:

Since the days of Kitty Hawk, Alcoa has had a part in virtually every airplane or power plant development where light metals were involved.



Alcoa's engineering, and research, and testing facilities have been applied to assisting with these developments, with a very important end in mind—to aid aviation's progress. Some, like the development of the aluminum airplane, have resulted in substantial aluminum savings. Others have resulted in no appreciable savings at all, but it *has* been through.

It is in this spirit of working together that in attending the Alcoa name on the wide, thin sheets available for the latest in "sandwiches", ALUMINUM COMPANY OF AMERICA, 2122 Gulf Building, Pittsburgh 19, Pa. Sales offices in principal cities.

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Airline operations takes a significant step forward with the use of the PB-10 Automatic Pilot with Flight Path Control. Ensuring automatic range flight all the way, with automatic heading approach at destination, makes an actuality of every airline's fondest dream. Using established C.A.A. instrument landing system beams, the Control flies the airplane on smooth, exact flight

over the VHF range, or down the glide path for an accurate approach right to the runway. The PB-10's action is gentle, but precise—as Flight Path Control compensates for drift to keep the plane in the exact center of the beam. Investigate the Pioneer PB-10 Automatic Pilot with Flight Path Control—it holds the answers to many of your airline problems!

MODEL 10-10, 1947-1957

**Eclipse-Pioneer**

NEW YORK, NEW JERSEY

DIVISION OF



AVIATION CORPORATION

## AVIATION SALES & SERVICE

### Industry Challenges VA Threat To GI Flight Training Future

Congressional hearings focus on opposition to Veterans Administration handling of personal flying program; NASAO scores red tape.

By ALEXANDER McSURELY

Threats against continuance of the GI flight school program and other vocational training under the GI Bill of Rights are arising from opposition from all sectors of the fixed base operation industry. There are also some indications of Congressional support for full continuance of flight training.

At hearings before the House Veterans Affairs Subcommittee on Education, Training and Rehabilitation, supervisory personnel of the Veterans Administration has been subjected to strong attacks, both by Congressmen and by witnesses testifying against methods of administering the cost analysis formula which VA is requiring of all private and proprietary schools.

Winfred Blue—VA has been operating the flight training program at a "snail's pace," Rep. Alvin Winkler (R, Ohio) told the subcommittee at a recent hearing. "I have been getting complaints about it for the last three years."

"Congress did not intend for the law to be administered like this. These regulations have set themselves up like little tin gods. A GI college student can take such an elevator as mine but it is so slow to take a flight elevator he is frustrated," Winkler continued.

Albert Suckman of Bowling Green University board of trustees, who testified following Winkler, said that his school had given aviation training to over 1300 students during World War II and had been offering aviation courses since 1917. Currently 125 students are taking aviation training. There are only 15 or 20 who are capable enough to take it if the college ruling made by VA remains in force.

Gov's Denies—Disclosure that Gen. Gray, now Veterans Administration, has upheld H. V. Whelan, assistant administrator, is his ruling against flight training as a GI elective in college courses, was made in Aviation Week last week. (For details of ruling see Aviation Week, May 13, 1947.)

Gen. Gray stated his position in a letter to the House Veterans Commis-

sion which said "I would not be justified in modifying the order."

Prospects for Congressional action to modify majority of administration of the present GI program depended largely on amount of demand for such action. Rep. Homer A. Roney (R, Ohio), chairman of the subcommittee, indicated at the hearing that he thought Gen. Gray "had already closed up" the college rules, but this was apparently misinterpretation in view of the Gray letter on file with the committee.

Congressional Support—Rep. George Lusk (D, N. M.), member of the subcommittee, said the favored GI flight training and believed there should

## GI School Hearing

Members of the House Subcommittee on Education, Training and Rehabilitation (Veterans Affairs Committee) have scheduled school hearings as the GI flight training program begins at 10 a.m. Friday, Feb. 26 in room 155, Old House Office Bldg., Washington, at which numerous members of the industry are expected to testify. Results of industry actions here may determine the fate of GI flight training.

be a place for it in the educational system of this country. Another subcommittee member, Rep. Don Whelan (D, Cal.), said the committee he had received "several bundles of mail and telegrams" warning to know why he was suspending the GI flight program. "I'm not trying to suspend it, he pointed out. "That he I haven't even opened up enough on the subject."

In addition to numerous private members of Congress from five House districts residing people for relief from present GI regulations, National Association of State Aeronautics is making action on GI flight training.

NASAO Stood—NASAO President Chester Conash, Indiana State Aero-



PRATT & WHITNEY "TEAM"

Four repeated discussion of Pratt & Whitney engines used at Dallas, to begin plans for personal cooperation on parts assembly and other aviation services, working with the Pratt & Whitney team office. Left to right: Walter G. Leonard, Dallas, Calif., president, Pacific Aircraft; George W. Johnson, III, Dallas, vice-president, Southwest Airlines; J. V. Thompson, Memphis, Tenn., president, Aeronutronics Corp.; (standing, Moore Corp., Fort Harford, Conn., service department, Pratt & Whitney division, United Aircraft Corp.); Walter J. Clark, St. Paul, Minn., president, Northwestern Aeronautical Co.



## Investment Trusts Slow to Shift In Aviation Securities Holdings

Analysis shows little change in position after 1946 liquidations; steadiness interpreted as possible evidence of faith in the future of the securities.

Investment trust which retained three interests in aviation shares at the end of 1946 did not divest these positions during 1947, analysis of year-end portfolios disclosed.

This action may be construed either as manifestation of some hope for the future or as an indication that paper losses were so great it was considered unwise to liquidate stock holdings.

► **Aviation Investments Unit—National Aviation Corp.** remains the only major trust with aviation concentrated exclusively in the industry. A good many years ago, this trust attempted to diversify its investments among the securities on the broad industrial list, with aviation occupying a far less prominent position than it does at present. However, this move evidently was considered undesirable and during the past few years the trust has confined its investments to the aviation group.

Net assets of National Aviation aggregated \$6,676,251 at the end of Dec. 31, 1947. The portfolio with a peak of \$13,137,188 at the end of 1945 year end and with \$5,946,237 a year later. The substantial decline is nothing more than a reflection of the fall of market values in aviation securities.

It is significant that the company's investment portfolio reveals a marked shift to aircraft shares during the year, rising from 10.0 to 35.6 percent. Aircraft shares increased only 1 percent to represent a total of 46.7 percent of total assets at the 1947 year end. These adjustments were made at the expense of cash balances which were reduced from 39.8 to 26.1 percent.

As at Dec. 31, 1947, the trust owned the following shares:

Aircrafts	
22,500 Bell	
19,000 Boeing	
6,000 Douglas	
5,000 Goetz	
10,000 Lockheed	
13,500 North American	
8,000 Thompson Products	
9,000 United	
3,200 United, preferred	

Airlines	
10,000 Air Transport Ltd. Agency	
1,000 Air Express Ltd. Agency	
Warrent	
15,100 American, preferred	
6,000 Braniff	
5,000 Chicago & North	
2,200 Chicago & South V.T.C.	
10,000 Delta	
40,000 Eastern	
5,100 National	
15,000 Northwest, preferred	
\$510,000 PCA Debentures	
5,000 United	
5,000 United, preferred	

► **New Acquisitions**—Among the aircraft, all of the North American and United represent new acquisitions during the year. Substantial positions were made in the holdings of Bell, Boeing, Douglas, Goetz and Lockheed aircraft companies.

In the airline group the airline holdings of Air Express International, Northwest and United preferred were acquired during last year. Partly to offset these purchases, Northwest and United common stocks were sold. Important additions also were made in American preferred, Braniff, Delta and National Airlines stock.

In the aircraft investments Bell, Boeing, Goetz and Thompson Products and United Aircraft currently are selling in excess of cost. For the most part, purchases in these shares made earlier in 1947 are responsible for this showing. In the airline group, only Eastern and Braniff Airlines show a net profit.

► **Aircraft Holdings Reduced**—Air Investment, Inc., which formerly devoted its investments exclusively to aviation shares, continued its trend toward stock diversification at the head end of last year. As of the 1947 year end, total aviation shares represented less than 20 percent of all securities owned. During last year, holdings in United Air Lines and Northwest were completely liquidated. Manual reductions were made in the remaining holdings of American Airlines, American Overseas Air-

line, Eastern Air Lines, Northwest Airlines preferred, Pan American Airways and TWA.

At the end of 1947, the trust reported holdings of Air Investment consisted of 1990 Eastern Air Lines, 5800 American Airlines and 1700 Northwest preferred.

► **Continues to Specialize**—Another trend continuing to specialize in aviation securities is Aviation Group Shares of Investment, Inc. This portfolio consisted of holdings in 18 issues having a total cost of \$601,472 with a market value of only \$346,667. Only investments in Boeing, Eastern and Goetzman show a present net average gain. Among the more recent liquidations in the 1947 year end were 4000 Eastern, 2400 American, 2700 United Aircraft, 1200 Douglas, 2000 Boeing and 3000 Lockheed.

The Eastern Corp., general investment trust, did not disturb its aviation investments during the second half of 1947. Its total holdings in this group represent a total cost of \$1,475,642 with an indicated market value of these securities of only \$1,711,094 as of the 1947 year end.

Eastern Corp. continues to hold 14,000 American, 18,750 American International, 10,000 American, 4,000 Pan American, 10,000 Boeing and 28,000 United Air Lines.

► **Other Trusts**—Other trusts which also have aviation security investments included National Investor which as of Dec. 31, 1947, reported holdings of 58,500 shares of American, 24,500 shares of Eastern and 6,000 shares of United Air Lines.

Investment Management, as of the same date, showed holdings of 4000 Goetzman and 7000 shares of United Aircraft.

Industrial Investor owns 10,000 shares of Goetzman and 16,000 shares of United Aircraft for its sole investments in the industry.

Central Management reported holdings of 10,000 American, 2000 Eastern and 900 United Air Lines.

A review of all aviation holdings in the aviation group show Goetzman and United Aircraft as the favorites in the current reorganization action, with Eastern and American Airlines being contenders for leadership in the transport category.

—Sally Altschul



### London Letters

## Deficit and Equipment Problems Harass BOAC as 1948 Begins

Nineteen idle Tudors await BOAC decision; carrier ponder move to buy 60 DC-4Ms from Canadian for probable use on Empire routes.

LONDON—Sir Miles Thomas, 50, who only recently ended a long association with the British Overseas Airways (BOA), is its vice-chairman and active managing director, has joined British Overseas Airways Corp. as its deputy-chairman.

With BOAC, Sir Miles will be free to indulge his long-held interest in the overseas development of industry within the British Commonwealth. He will be specially responsible for air-sea problems of transportation and operation on BOAC's Empire routes.

Sir Miles' new appointment, which takes effect April 1, will not interfere with his duties as a director of British reconstituted Colonial Development Corporation nor as industrial development consultant to the government of Southern Rhodesia.

Sir Miles joins BOAC at a time when, to paraphrase Gilbert and Sullivan, "a director's life is not a happy one." The corporation's steadily rising financial report, covering the year ended last May 31, showed a deficit of £1,876,544 (532 million). Sir Harold Hartley, who succeeded this situation when he became BOAC's chairman July 1, and Whitney Straight, who became managing director at the same time, found only gross explanations for this deficit. Among those they cited:

- Too many types of aircraft, expensive to maintain.
- Delay in delivery of the Tudors (19) of which are now standing on the A/V RoC article near Manchester, and requested by BOAC and the change to plan which had therefore to be made, with financial repercussions.
- Maintenance at inflated and improved rates.
- Diligence in multi-occupation.
- Necessary development work carried out by BOAC.
- Services required in the national in-

### BOAC-BSAA Merger?

LONDON—Despite the strong conflict in personalities that would result a merger of BOAC and BSAA (British South American Airways) is regarded as possible in the near future. More likely it will be important as the first step toward cutting overhead rather than as a step toward amalgamation of all three British lines. Sir Miles Thomas is under official constraint for chairman of the merged corporation, whether two or three, to give them top-notch business management. As Vice-Minister D. C. T. "Don" Bennett from BSAA is being placed in for chief executive officer.

After some delay on its report on the Tudor service problem, due to later departmental differences, the Country Committee recommended that an airworthiness certificate be removed and action between London and Montreal be taken. The committee also recommended that to be made good to the operation. The Ministry of Supply, crossing the ball for all British aircraft on British airlines, upholds the view that Tudor is essential in service to the North Atlantic route (for which they were ordered initially as an "interim" type), despite the gas expenditure that the 14-cylinder engine would use BOAC at least £1,000,000 a year in extra costs between New York and London. (It was on this ground that BOAC rejected the Tudor service earlier months ago.) The Ministry of Civil Aviation, often harsh, contradictory view, BOAC's deficit (above) and British Overseas Airways' £2,500,000 deficit, is hesitant to enforce a decision that would cause all British airlines to enter greater deficit.

One major toward more suitable aircraft is still under consideration. This would involve the corporation to take full advantage of the high profile factor as the DC-4M design with its dollar-conversion rate would be required for the purchase of American-built Super Constellation or Constellation. The move calls for BOAC to acquire from Constellation as many as 30 DC-4Ms powered by Pratt & Whitney Menzies. The cost of these, around £140,000 (£544,000 each), is only a little more than half that of a Constellation, and enough of this figure represents the cost of the

engine, which (being British-made) would not require payment of duties. Moreover, during the plane's life span of its present cost would be for engine spares and replacement, so that nearly half of its total cost could be met from savings, and its dollar cost could only be met from its dollar earnings.

Conclude, according to reports received here, could swing into high gear if it received such an order in the near future, and could begin deliveries of the 14-passenger improved version by July. Given the credit line issued to the ministry by arrangement with Trans-Canada Air Lines, which has already proved the acceptability of this design on its own trans-Atlantic operations, BOAC, with its five Constellation and replacing some to receive the first of the 30 Superconstellations which are an order, wouldn't need the DC-4M for its North Atlantic run, but would probably use on the Empire routes, instead.

But at the moment, BOAC hasn't decided whether it is worth making the effort—and it would require a big effort to cover such a proposal. It will be during the next financial year, when departmental, including the parliament of the, the Treasury.

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Meanwhile, BOAC now looking what the Fleet Street statisticians compute is 63.3 per cent—with its bank still tied up as the choice of aircraft for the second of the second half-billionaire fleet (the giant Constellation, the DH Constellation and the Super Constellation) is 45 flying hours committed to it for future use.

It is then there is the line which the confident automobile manufacturer steps.

—Frederick R. Brown



# 1949— Can Be a Good Year Too

You can expect good business to run on well through 1948.

But old-time competition is close upon us.

And 1949 will be a critical year for all of us—making lower taxation imperative NOW.

These are the main conclusions drawn from a nation-wide survey of industry's plans for new plants and equipment which McGraw-Hill has just completed. Here are the major findings:

1. Capital expenditures in 1948 may be a little lower—but at the most only 1% lower—than in 1947.
2. In 1949 capital expenditures may decline. 1949 plans are still fluid. However, those which have been projected now show a falling off. (Washington planners, please note: Current official attempts to discourage capital expansion may turn out to be superfluous—or downright dangerous.)
3. Industry's initial postwar rebuilding will be 85% complete at the end of 1948. When that first wave of deferred maintenance and expansion is finished, American industry will have more than half again the capacity it had in 1939. That does not mean the end of needed capital expenditures. Business will need to invest much more. (President Truman sets an investment goal immediately ahead of \$50 billion.) But it does mean that tough competition is returning fast.

• IF YOU WANT full details of the McGraw-Hill survey of Capital Expenditures, which is summarized in this editorial, write to the Economics Department, McGraw-Hill Publishing Company, 1221 Ave. of the Americas, New York 10, N.Y.

These are solid facts, based on plans which are firmly made by a broad cross-section of American industry and which the McGraw-Hill survey revealed.

The greatest contribution of this survey is the information it supplies on business plans for the purchase of new plants and equipment. What business planned to do about such expenditures was by far the biggest unknown element in the 1948 outlook. For, if business planned to slash its outlays for plants and equipment this year, that fact alone could bring a sharp downturn in business.

In making this survey, McGraw-Hill researchers all over the nation personally interviewed top executives of companies selected to make up a scientific cross-section of industry. Each executive was asked to give, not his opinion about general business trends, but factual details about his company's plans for 1948. By adding together the plans of the companies interviewed, McGraw-Hill has secured, for the first time, a reliable picture of what business plans to do in the months ahead.

Here are plans for 1948 and 1949, as revealed by the survey:

**1. Industry still needs more than a year to finish its initial postwar maintenance and rehabilitation program.**

Among manufacturing industries, top executives report that 64% of their programs for the immediate postwar period is now complete. According to present plans, 85% will be installed by the end of this year even though some manufacturing industries still have a long way to go. For instance, all companies will complete only three-quarters of their presently planned expansion program by the end of 1948.

**2. Business may spend less on new plants and equipment this year than the record \$16.1 billion spent last year. But the decline**

**probably will be negligible and certainly will not be great enough to bring on a business recession.**

At the time McGraw-Hill interviewed top executives, some companies had not yet approved their 1948 capital budgets. Under the extreme assumption that those particular companies will make no capital expenditures in 1948, industry's 1948 bill for new plants and equipment will run to \$14.8 billion, or 8% below last year's record figure. Under the more realistic assumption that those companies will cut their capital investment only as much as the companies which had already drawn up their plans for 1948, industry's 1948 capital budget will run to almost \$15.8 billion, a decline of only \$900 million from 1947.

Thus the over-all conclusion of the McGraw-Hill survey is that capital expenditures by business will be only slightly lower this year than last.

**3. Business executives will not slash their 1948 capital budgets unless they are convinced that a real slump is in the offing—and they are not convinced now.**

Almost two-thirds of all manufacturing companies say they would not cut capital budgets sharply even if business activity declined 20%. What is more, even a 15-20% boost in wage rates would have little effect on projected capital budgets. If wages go up, 37% of manufacturing companies would not change their capital budgets, 26% would increase them, and 37% would cut them.

**4. Most executives look for an increase in their company's sales this year.**

More than half of all manufacturing companies are planning on a sales increase over last year of 10% or more. A third of them say sales will be about the same as in 1947. And fewer than 10% look for lower sales.

**5. Manufacturing companies will finance much of their purchases of new plants and equipment in 1948 from funds set aside out of past or current earnings.**

Utilities and railroads, on the other hand, must go to the securities markets or commercial banks to finance most capital expenditures.

Although manufacturing companies say they can

finance this year's capital expenditures in large part from current profits and past savings, all evidence indicates that, to do so, they will use up most of the funds they accumulated during the war for this purpose. So in 1948, industry must go to the capital markets or to the commercial banks if it is to continue to spend for capital purposes. If the securities markets continue to be in the doldrums, as they will under present tax laws, only companies with triple A credit ratings will be able to raise funds that way.

**6. Purchases of new plants and equipment may fall off in 1949.**

The McGraw-Hill survey collected all available evidence on plans for 1949 capital budgets. Fewer than 45% of all manufacturing companies now have definite plans for 1949. Of those that have plans, 45% intend to spend less than in 1948, 39% plan to spend the same amount, and a quarter expect to spend more. These preliminary decisions would seem to indicate that capital investment may fall off in 1949.

**7. Industry's production capacity in 1949 will be far above prewar.**

Manufacturing capacity will be more than 50% greater than in 1939 once the present wave of postwar building is complete. Almost a third of all manufacturing companies report that their capacity will be double or more than double the prewar figure. Thus, 1949 may see a huge increase in production of many things that now are hard to buy.

The last two points in this summary mean that 1949 will be a critical year. We must forestall a sudden drying up of capital expenditures in that year. We must be able also to absorb a great outpouring of production both of capital and consumer goods.

What will happen to business in 1949, therefore, will depend on how successful we are this year in dealing with such momentous problems as taxation, foreign aid and prices. But 1949 can be a good year too.

The next editorial in this series will discuss the present problems of taxes.

*John H. McGraw, Jr.*

President, McGraw-Hill Publishing Company, Inc.

THIS IS THE OTHER OF A SERIES









## EDITORIAL

### You CAN Be On Time or The Boss Is Aboard

There has been no more dining announcement by any airline recently than Northwest's proposal to shave 5 percent of the first when a passenger reaches his destination over a half hour late.

There are certain delays, such as stacking over a terminal in instrument conditions, which no airline can avoid unless a perfect slot to operate at all. And we can have a hint of peacocking problem that NWA is strong for.

The significance of President Carter's "No more delays, however, is that here is one solitary top executive so determined to wipe out delays that he is willing to forfeit last-minute cash when he cannot deliver.

It has been for centuries in many months that airline executives have been so concerned with "bugger" problems that they have failed to understand or realize how the extra customer down the line gets locked around.

From several years' observation, it appears to us that too few executive brains are permitted to leave headquarters offices and mix with the passengers. There is no use of executive mind, not even a deputy executive, who is constantly on hand at the gates at every airport airline terminal to guard the airline's reputation for passenger service. There is no use on the premises who does to make enormous or unnecessary to limit the pendulum and perhaps represented set of conditions of the moment.

So passengers are handled like animals outside by a human man, in a better world than, to come together in a sort that should have been left under shelter. It is a tragedy.

### 'Unnecessarily Worried'

Considering the reason from the Freedom on the subject, the comment from the Seattle, kindly citizens were The Associates, in its Jan. 23 issue, a week repeating here.

#### SUPERSONIC WITHOUT PROOF

In their account of the recent report that the Bell X-51 had an-

### Let's Get This Straight

Several statements recently from certain of this editorial page have indicated a rather surprising (to all opinions of the difference between an industry magazine and a newspaper, relative to circulation.

A letter from a technical school aerospace teacher we are outspoken occasionally "in strident" criticisms. On a plane the editor has one of our editors at beside a regional CAA official who was reading this magazine. The official commented he had everything about as he had the editorial page. "Their criticisms have to attack CAA every once in a while to increase circulation."

This is a good time to say to us: "We will not shut us in, we are there. Those who feel about us are open to our letters page."

2-We have no second copies, support as stated interest. 3-No editorial written, no news story is written, in an effort to offend circulation. Since July our circulation has

airline employee leaves a door open so a 20 mile an hour wind will fill the field on about 30 or 40 passengers who stand 15 or 20 minutes waiting for a plane when they shouldn't have to be waiting to stand at all, as cheap as rough benches would be to install in those 15 or 20 minutes, but example. Taken as collected slowly at the heavy door instead of on the plane. (The same collection probably will go through the airline doing a repeat again anytime.)

This theory of Cook Heister, that the top man himself has to do the task of supervising service if he can properly supervise passenger service employees, was proved the other morning on another airline. A personal selection is necessary. In the last six or eight months of frequent flying, we have been on only this flight that was satisfactory for its passengers in meeting a scheduled departure.

We were flying business with friends at Washington National Airport near the upper gate in the lobby. The lobby gateway was about. Three minutes before the scheduled departure time, a preferred officer stood outside on the stairs, and with a touch of enthusiasm and humor in his voice said, "Are you looking on Flight Service?" We were, but had not heard any final call. "You should be downstairs on that plane right now, sir," he said.

At the foot of the stairs the pilot was tipped off his cockpit with instant dispatch. Another employee stood outside the plane door, and closed it after it was a bag. The stairway was heated very rapidly as they say a feeder airline always does it. The man with the fan on a regular stand outside rapidly at attention. Beyond, the left propeller began turning slowly at the exact moment the aircraft left two days earlier had said it would. As we were quietly contemplating this line as it was released, we glanced ahead and a great light shined in the left front seat off the window at the whole operation was out C. R. Smith.

It is hard to remember why this general course of every passenger flight can't act as though the Big Boss was aboard every step. As a matter of fact it is to the American public.

Apparently airlines can do it when they want to. Cook Heister seems to want to.

could the speed of sound. There seems increasingly toward us the fact that the month was provided to the public in having a straight way.

Regular readers will remember that the last related details of the Nike M-32 response project revealed that it had a straight way. There can be several that while most people, however, have been persuaded with respect back ways for systematic search after plan items have not been opened to the center or the whole, and their possibilities as by no means overlooked.

has been hundreds to several thousand higher than our guarantee to subscribers, and every additional subscription over that guarantee is, from a hard-headed commercial standpoint, a loss. For months not a single subscription solicitor was instructed to seek new readers for this magazine. A very few magazines can profit from subscription alone, Aviation Week is not out of them.

4-Therefore, an annual meeting we have not been able to hold by any means of all the new subscription system needed us. Now often accepted are carefully selected. We are not interested in him, Oregon choppers, and canoe look enthusiasts. Our advertising is not interested in advertising such groups, either as we. Unlike a newspaper, which is always eager to jump into a new line of business, a responsible business magazine judges a quality readership to quantity. We are no exception.

As far as this magazine is concerned, our aim is to inform and entertain, not to boost circulation. That part for the advertiser, too. —ROBERT H. WOOD

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MICRO line includes switches with 100% test unit. (Left) 100% test unit. (Right) 100% test unit.



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